

**METHODS FOR IMPLEMENTING VIRTUAL BASES  
WITH FIXED OFFSETS IN OBJECT ORIENTED APPLICATIONS**

**ABSTRACT OF THE INVENTION**

There is provided a method for implementing virtual  
5 bases with fixed offsets in a class hierarchy graph  
corresponding to an object oriented program. The graph has  
nodes representing object classes and edges representing  
immediate inheritance therebetween. The method includes the  
step of determining whether a set N is empty, the set N  
10 including all nodes in the graph. A node x is removed from  
the set N, when the set N is not empty. It is determined  
whether a set Y is empty, the set Y including nodes that  
directly and virtually inherit from the node x. A return is  
made to the step of determining whether the set N is empty,  
15 when the set Y is empty. A node y is removed from the set  
Y, when the set Y is not empty. It is determined whether  
the node y is duplicated in the graph. A return is made to  
the step of determining whether the set Y is empty, when the  
node y is duplicated. An edge e is replaced with an edge  
20 e', when the node y is not duplicated. The edge e  
represents that the node y virtually inherits from the node  
x. The edge e' represents that the node x has a fixed  
offset with respect to the node y. A return is made to the

step of determining whether the set  $N$  is empty, upon replacing the edge  $e$ .